

### IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An electro-optic modulator comprising:  
a substrate;  
a planar micro-cavity supported by the substrate;  
a first Bragg reflector on a first side of the micro-cavity;  
a second Bragg reflector on a second side of the micro-cavity;  
~~electrically~~ optically isolating lateral trenches on lateral sides of the micro-cavity to increase carrier concentration in the micro-cavity; and  
a modulator that modulates a refractive index of the cavity.
2. (Original) The electro-optic modulator of claim 1 wherein the modulator comprises a p-i-n diode formed on top of the micro-cavity.
3. (Original) The electro-optic modulator of claim 1 wherein the Bragg reflectors are distributed Bragg reflectors.
4. (Original) The electro-optic modulator of claim 3 wherein the distributed Bragg reflectors comprise alternating areas having high and low refractive indices.
5. (Original) The electro-optic modulator of claim 3 and further comprising a rib extending through the cavity and Bragg reflectors.
6. (Previously Presented) The electro-optic modulator of claim 1 wherein the isolating trenches are filled with silicon dioxide
7. (Original) The electro-optic modulator of claim 1 and further comprising an insulative layer formed on the substrate between the substrate and the micro-cavity and Bragg reflectors.

8. (Currently Amended) The electro-optic modulator of claim 7 and further comprising a planar silicon dioxide layer covering the micro-cavity, Bragg reflectors and modulator to completely optically isolate the micro-cavity.

9. (Currently Amended) An electro-optic modulator comprising:  
a silicon substrate;  
an insulator formed on the silicon substrate;  
a planar micro-cavity formed on the insulator;  
a first Bragg reflector formed on a first side of the micro-cavity;  
a second Bragg reflector formed on a second side of the micro-cavity;  
a rib extending through the cavity and Bragg reflectors;  
a p-i-n diode formed on the micro-cavity that modulates a refractive index of the cavity;  
and  
an optically isolating lateral trench in the micro-cavity on both sides of the modulator to increase carrier concentration in the micro-cavity.

10. (Currently Amended) An electro-optic modulator comprising:  
a rib waveguide;  
an electrically optically isolated cavity region, wherein the rib waveguide divides the cavity region into two sections;  
a pair of reflectors disposed about the cavity region along the rib waveguide; and  
means for modulating light passing through the rib waveguide.

11. (Original) The electro-optic modulator of claim 10 wherein the means for modulating light comprises a p-i-n diode coupled to the two sections of the cavity region.

12. (Original) The electro-optic modulator of claim 11 wherein the p-i-n diode comprises a p+ doped area over one section of the cavity region, and a n+ doped area over the other section of the cavity region.

13. (Original) The electro-optic modulator of claim 12 wherein the doped areas are separated from a rib of the rib waveguide.
14. (Original) The electro-optic modulator of claim 12 and further comprising lateral trenches extending between the reflectors and bounding the cavity region.
15. (Original) The electro-optic modulator of claim 10 wherein the reflectors comprise alternating high a low refractive index sections disposed transverse to the rib waveguide.
16. (Original) The electro-optic modulator of claim 12 wherein the high refractive index sections are formed of Si, and the low refractive index sections are formed of SiO<sub>2</sub>.
17. (Original) The electro-optic modulator of claim 10 and further comprising a silicon substrate supporting a buried oxide layer on which the rib waveguide, reflectors and cavity region are formed.
18. (Original) The electro-optic modulator of claim 12 wherein the cavity comprises a Fabry-Perot microcavity.
19. (Original) An electro-optic modulator comprising:
  - means for confining an optical field in a cavity;
  - means for confining carriers in the cavity; and
  - means for modulating a refractive index of the cavity.
20. (Currently Amended) A method of modulating light, the method comprising:
  - providing light to a first end of a rib waveguide;
  - providing a first reflector along the waveguide;
  - passing the light into an ~~electrically~~ optically isolated modulation cavity from the first reflector;

providing a second reflector opposite the first reflector relative to the ~~electrically~~  
optically isolated modulation cavity; and  
modulating the light in the modulation cavity.

21. (Original) The method of claim 20 wherein the light is modulated by applying a signal to a p-i-n diode formed on the cavity about the rib waveguide.
22. (Previously Presented) The electro-optic modulator of claim 1 wherein the micro-cavity is passivated.
23. (Previously Presented) The electro-optic modulator of claim 22 wherein the passivation comprises a thermal oxidation of silicon.
24. (Previously Presented) The electro-optic modulator of claim 9 wherein the micro-cavity and lateral trenches are passivated with a thermal oxidation of silicon.